

### **ABSTRACT**

A system and method of directly, dynamically and on-line measuring different parameters related to the volume dynamically occupied by the internal load of rotating mills when in operation; specifically, an on-line measurement of the total dynamic volumetric load filling, dynamic volumetric ball load, dynamic volumetric mineral filling and of the apparent density of the internal load of the mill. The present invention comprises a series of wireless acoustic sensors attached to the mill's outer body, a receiving and/or conditioning unit located near the mill, a processing unit and a communication unit.